15.—Geographical Variation and Distribution of some Birds from Western Australia

By G. F. Mees*

Manuscript received—17th March, 1964

Revisional and distributional data are given on ten species of passerine birds from Western Australia.

Introduction

Over the past few years I have collected evidence on the validity of certain subspecies of birds described from Western Australia, together with other information. Some of these findings alter or are complementary to recent revisions (Mayr 1948, 1954, Mees 1961), and therefore warrant publication. All material discussed is in the collection of the Western Australian Museum.

Coracina novaehollandiae (Gmelin)

Earlier I stated that no evidence of migratory movements in Western Australia existed (Mees 1961, p. 111), and that no individuals of *C.n. melanops* were known from within the range of *C.n. subpallida*.

However, in July 1959 I was surprised to find flocks comprising dozens of birds in the scrub-country south of Carnarvon; there were individuals with dark and with pale mantles, clearly both *melanops* and *subpallida*. In the first fortnight of August 1959, the species was also common at North West Cape, though not in such great numbers. The concentration of hundreds of birds near Carnarvon was far above anything one would expect of a local breeding population or even of local movements, and I am convinced that true migration was involved. On 14 May, 1960 I especially noted that in the same area not a single individual was observed. In December 1962 I saw only an occasional pair of what seemed to be *subpallida*. According to Peters & Mayr (in Mayr & Greenway 1962, p. 171), *subpallida* winters in the Lesser Sunda Islands and Kei Islands. It may be that the subspecies does partially migrate to these islands, but I have not seen specimens, and the majority of individuals seems to stay in Australia.

Material collected since my previous paper was written confirms the occurrence in winter of both subspecies in the north-west of the State. I give here a full list of specimens and localities.

C.n. subpallida. ♀, 5-VIII-1959, Milyering Well, Yardie Creek Station, North West Cape (A 8636); ♀, 20-V-1960, Cossack (A 8526); ♂ imm., 20-V-1960, Cossack (A 8524); ♂ 20-V-1960, Cossack (A 8525); ♀ 8-IX-1959, Edmund Station, Barlee Range (A 8649).

C.n. melanops. ♂ imm., 5-VIII-1959, Milyering Well, Yardie Creek Station, North West Cape (A 8924); ♀ imm., 7-VIII-1959, Milyering Well, Yardie Creek Station, North West Cape (A 8925); ♀ 11-VII-1959, Murchison River Bridge, north of Geraldton (A 8953); ♂, 11-VI-1962, Legendre Island, Dampier Archipelago (A 8835); ♂ 22-I-1962, Beagle Bay Road, west Kimberley Division (A 8951); ♂ 21-VI-1960, Kalumburu, north Kimberley Division (A 8622).

Note especially the specimens of *melanops* from Yardie Creek and Legendre Island, in the range of *subpallida*. The specimen from the Murchison River is rather pale for *melanops* and may be considered somewhat intermediate: this is what one would expect from a breeding bird of that locality. Keast (1961, p. 413) refers to the form *subpallida* as an isolate, but I regard it is unlikely that it is.

Previously I noted that the testes of *C. novaehollandiae* are dark slate in colour. I have since collected *Coracina papuensis hypoleuca* in the Kimberley Division (Kalumburu and Beverley Springs) in which I found the same feature.

Acrocephalus stentoreus gouldi Dubois

Mayr (1948), in his revision of the Australian reed-warbler, accepted as valid the name *carterae* Mathews, though with grave misgivings: " . . . the type of *carterae* has a relatively and actually much larger bill than *gouldi*. I would refrain from naming a new form on such slight basis and with only a single specimen available, but now that the name is in the literature, it must be recognized". A specimen collected by me near Derby on 6 June, 1960, almost topotypical of *carterae*, has a bill of average length for *gouldi*, from individuals of which race I am unable to distinguish it. Moreover, in June 1962, during a visit to the American Museum of Natural History, I compared the type of *carterae* with specimens from south-west Australia, and found a south-west bird with a bill as long as the bill of *carterae*. Therefore, *carterae* is doubtless a synonym of *gouldi*. At the time of my visit to Derby, the small pool where I collected a specimen harboured several individuals, but my friend Mr. P. Slater, at the time a resident of Derby, who accompanied me, mentioned that he had not previously observed reed-warblers in that locality. I regard it as possible that the birds observed were migrants from the south. As yet there is no proof of the existence of an indigenous breeding population in the Kimberley Division.

The validity of *gouldi* itself is in need of confirmation, as I have pointed out in a previous paper (Mees 1961, p. 113).

* Formerly Western Australian Museum, Perth, Western Australia. Present address, Rijksmuseum van Natuurlijke Historie, Leiden, Holland.

Pachycephala pectoralis (Latham)

According to the latest published information, in south-western Australia this species extends from the mouth of the Murchison River to the Esperance area, and inland to Bunketch (observed once), Kellerberrin (rare), Lake Grace and Mt. Ridley (Reid 1951, Ford & Stone 1957, Serventy & Whittell 1962).

In the first half of 1963 I found it in several localities well inland from the range indicated, and it appears that the species is much more widely distributed than was hitherto known. The observations are as follows (Fig. 1): Mt. Hampton, 10 March, one singing male; Mt. Holland, 15 April, two singing males; Parker Range, 15 April, fairly common; Moorine Rock, 16 April, several individuals of both sexes; Carrabin, 16 April, a pair; Great Eastern Highway near the 301 mile post (47 miles west of Coolgardie), 12 June, at least two singing males; Mordetta, 10 July, several individuals; eleven miles north of Pingaring, 10 July, one singing male; Jitarning, 21 and 22 July, several individuals.

While none of these observations were made in the breeding season, nothing is known of migration, and I regard it as likely that the species is a resident in the localities listed. It is surprising that this common and familiar species has been overlooked in such an extensive part of its range.

Pachycephala lanioides Gould

In his review of the Australian members of the genus *Pachycephala*, Mayr (1954) recognized four subspecies of *P. lanioides: bulleri, carnarvoni* (consistently misspelt *carnavoni* by Mayr), *lanioides* and *fretorum*.

Mayr did not have much material at his disposal; he was also much impressed by the patchy occurrence of mangroves along the Australian coast. Earlier Mack (1933) had been even more handicapped by lack of material. Over the past few years many additional specimens have been collected by myself and other staff members of the Western Australian Museum.

Before discussing the variation of the species, I will say something about mangrove birds in general. It is true, as Mayr states, that the occurrence of mangroves is patchy. But does this necessarily mean that Mayr (p. 10) is also right in calling the populations inhabiting such mangrove patches "true isolates"? In my opinion the problem of the mangrove birds, and of other birds inhabiting a specialised habitat which is patchy in occurrence, is to find and colonize all the available habitat, because perhaps no single patch is large enough to ensure the continued existence of a population for any great length of time. In other words, birds of this group, to be successful, must have fairly good dispersal faculties. This is in conflict with a natural tendency to become sedentary in any good patch of habitat. Probably both these opposite selective factors are at work, resulting in a species with moderate mobility. On the basis of this the geographical variation of *P. lanioides* can be explained satisfactorily. On

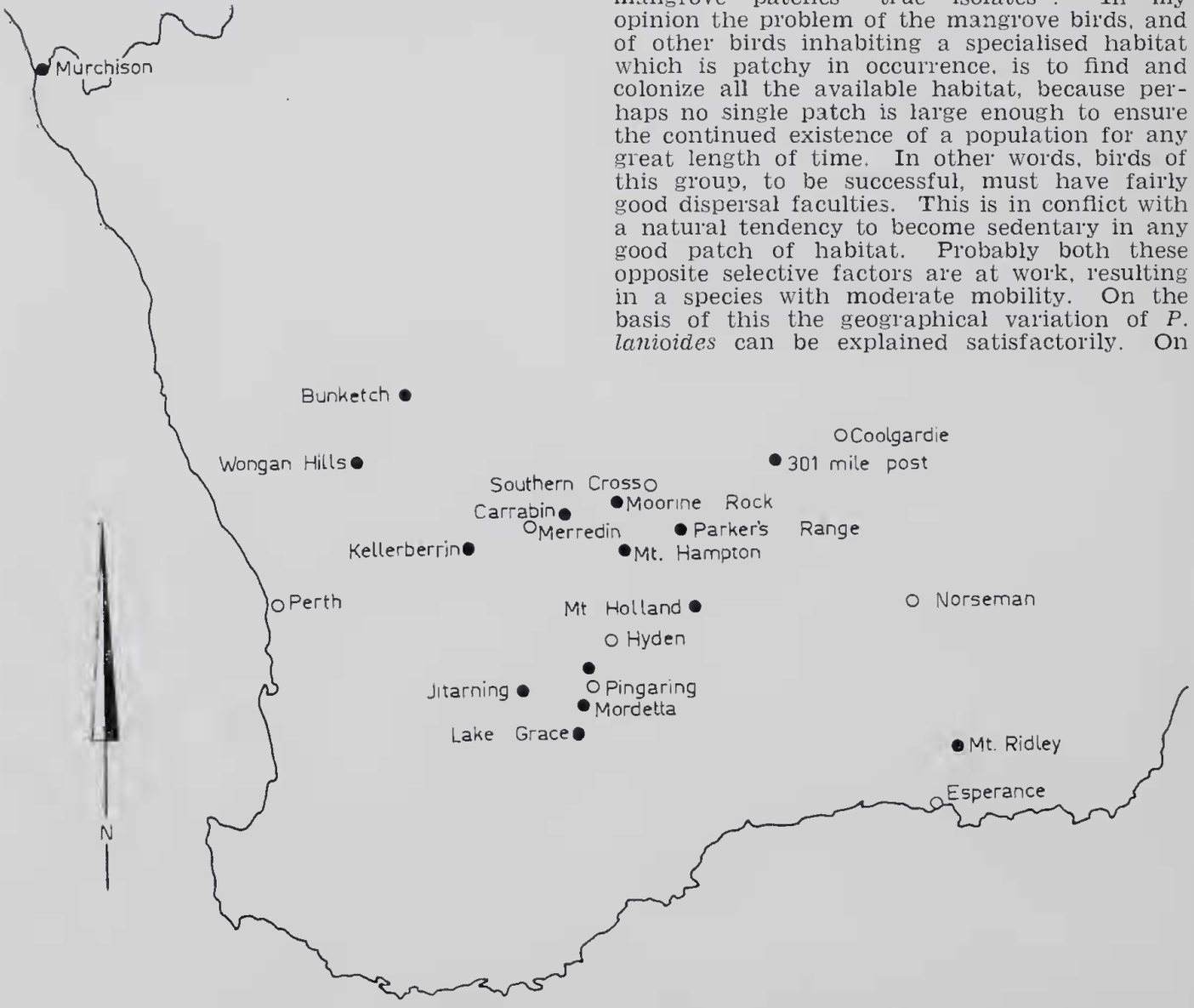

Fig. 1.—The inland distribution of *Pachycephala pectoralis* (dots) in Western Australia. Towns indicated by open circles are put in for orientation.

Fig. 2.—The distribution of *Pachycephala lanioides* (dots). The arrows with the figures 1 and 2 indicate position and extent of the two major gaps in the mangrove belt in Western Australia.

the map (Fig. 2) I have indicated the distribution of *P. lanioides* as ascertained from material examined and from Mayr's records, and also the two major gaps in the mangrove, as ascertained during visits to the north and north-west of the state in 1959, 1960 and 1962: a gap of about 220 miles between Carnarvon and Tantabiddy (North West Cape), and one of about 140 miles between Pardoo and La Grange.

The new material confirms the conclusions as regards geographic variation drawn by Mayr, except that I recognise not four, but three races, which from south-west to north-east are:

1. *Pachycephala lanioides carnarvoni* (Mathews 1913).

Pachycephala lanioides bulleri Mayr 1954.

Differs strikingly from the other races in that the female and the male in immature plumage are essentially brown in colour, not grey. I fail to find any differences between birds from Carnarvon, Exmouth Gulf and as far up the coast as Port Hedland (included in *bulleri* by Mayr). Most interesting is a single adult female from Pardoo, which is greyish brown in colour, almost exactly intermediate between *carnarvoni* and the nominate race. This is what one would expect from its intermediate geographical position. I have not examined topotypical material of *"bulleri"* from De Grey, but the mangroves between there and Exmouth Gulf are more or less continuous, show at least no major gaps, and in Mayr's description there is nothing inconsistent with the view that this population differs from *carnarvoni* only in a slight trend towards the nominate race, a trend more pronounced in the Pardoo bird. As in my opinion there is no point in subspecifically naming intermediates where smooth gradients exist, and as naming is in such cases actually misleading, *bulleri* has to be synonymized with *carnarvoni*, to which it is closest. I may add that I do not quite understand why under the subspecies *bulleri*, Mayr remarks: "This ecologically specialized bird is undoubtedly confined to isolated pockets of mangrove". The remark is very much to the point, but not especially for this race, but for the whole species.

Though, as Mayr pointed out, Mathews (1930, 1931) had synonymized his name *carnarvoni*, it should be noted that A. J. Campbell (1918), who was an infinitely better ornithologist than Mathews, had previously mentioned its diagnostic characters.

Measurements.—Males: 97, 97.5, 100, 100, 101, 101, 101, 102, 102, 103. Males in female plumage: 96, 96, 99, 100. Females: 93, 95, 96, 97, 98, 99, 101.

Distribution.—The coast of Western Australia from Carnarvon to De Grey; intermediates towards the following race at Pardoo.

2. *Pachycephala lanioides lanioides* Gould 1840. Males are similar to those of the preceding subspecies, females differ by being grey, not brown, above, and much paler with hardly any buff below.

Measurements.—Male, 102. Male in female plumage: 96. Female: 97.

Distribution.—Only known from the West Kimberley Division, from Broome to Point Torment, but almost certainly ranging farther north.

3. *Pachycephala lanioides fretorum* De Vis 1889. Similar to the nominate race but slightly smaller.

The four specimens taken by me at Wyndham confirm Mayr's conclusion as regards the applicability of the name *fretorum* to the slightly smaller eastern birds. At the same time it must be remarked that my material is in rather worn plumage and that the difference in size is slight. Specimens from Wyndham agree in wing size with material from the Roper River, the easternmost locality whence the species is certainly known. They also agree with the measurements published by De Vis (♂: 93, 96; ♀: 92).

Measurements.—Males: 95, 99. Females: 93, 94. The following measurements of material from Roper River in the H. L. White Collection were supplied by Mr. McEvey. Males: 94, 95, 97. Immature male: 96. Females: 92, 94.

Distribution.—Northern Australia from the Cambridge Gulf to the Roper River; apparently Kimberley, Gulf of Carpentaria.

Discussion.—Both Mack (1933) and Mayr (1954) have commented on the inadequacy and ambiguity of De Vis' (1889) description. I have studied it carefully, and in my opinion it makes sense only if in its first paragraph the word "not" is added, so that it comes to read: "Among the birds brought from Cambridge Gulf is a young female Pachycephala which is NOT identical with an adult of the same sex procured at Kimberley on the Gulf of Carpentaria in company with two males. These which have hitherto been supposed to be *P. lanoides*, Gld., must now be considered to constitute a distinct species. The writer proposes for it the name *P. fretorum*".

When this is done the description becomes understandable; the receipt of the specimen from Wyndham, which De Vis considered as typical *P. lanioides* (misspelt *lanoides* by him), was the first of the species from a western locality available to him, and enabled him to differentiate his three eastern birds from true *lanioides*. For this reason also, descriptions are given of the three Gulf of Carpentaria birds: adult male, immature male, adult female, but not of the juvenile female from Cambridge Gulf. Similarly, in the list of measurements these two males and one female are listed as *P. fretorum*, while for comparison measurements of one specimen of *P. lanioides* are given; the sex of this specimen has not been recorded again, as it had already been said to be a young female. The type locality, southern shores of Torres Straits, which would be more or less correct for the birds from Kimberley, Gulf of Carpentaria, but not for Cambridge Gulf, supports my views. So does the fact that Saville-Kent (1889, p. 220) lists his specimen from Cambridge Gulf as *Pachycephala lanoides*, which name (with the incorrect spelling!) must have been given to him by De Vis.

On the other hand I must admit that in the list of birds collected at Cambridge Gulf (p. 236) De Vis lists this same individual as *Pachycephala fretorum*. This, however, can be ascribed to his well-known carelessness.

From the preceding discussion it will be clear that I do not regard the specimen from Cambridge Gulf as a cotype of *P. fretorum*. Kimberley, Gulf of Carpentaria, will have to be regarded as the type-locality, unless it is definitely proven that the species does not occur there. As mentioned by Mayr, the only specimen of the four discussed by De Vis now present in the Queensland Museum is the one from Cambridge Gulf. This was confirmed once more by Mr. Mack (in litt., 5-VI-1963): "I have checked the old bird collection here in connection with De Vis' species *Pachycephala fretorum*, and the only specimen present is what appears to be a young bird, possibly a female, with a culmen 20 mm. long. Originally, De Vis has written on the small label *Pachycephala "lanoides"*. The name *"lanoides"* has been marked out and *fretorum* put in its place. There are no other specimens of *P. lanioides* in the collections". It is unfortunate that none of the three individuals of *fretorum* described by De Vis can be traced; it should also be noted that he says nowhere that they were in the Queensland Museum, and I am inclined to believe that they were not, as it is unlikely that all three of them would have disappeared without leaving a trace.

How De Vis could find a culmen length of 17.0 to 19.0 mm in *fretorum* and of 25.0 mm in the individual from Cambridge Gulf is obscure. Possibly he measured the exposed culmen of *fretorum* and the entire culmen of *lanioides*, which would make it about right.

Colluricincla harmonica julietae Mathews

Mathews (1942)* based the name *Colluricincla brunnea julietae* on a single individual from Sturt Creek, which was described as differing from *brunnea* in its smaller size. The type in the collection of the Western Australian Museum, rcgd. no. A 4004, has a wing length of 117 mm (Mathews gave it as 116), and though its plumage is abraded, even freshly moulted the wing would not have been more than one or two mm longer.

* Serventy (1946) concluded that Mathews's paper with the description of this and other new forms was published in 1943, and at the time he was right. The International Commission on Zoological Nomenclature has since ruled, however, that circulation of author's copies and other preprints constitutes valid publication (Stoll & al. 1961), and certainly in a case like the present one, in which the exact date of publication is printed on the paper, there is no reason not to accept this date, 12th February, 1942. An interesting point that appears is that now *Cervinipitta kimbleyensis* was published earlier that the emendation *Cervinipitta kimberleyensis*, which appears on a slip circulated with the completed volume in 1943, but not with the original preprints.

Measurements of *brunnea* in our collection (specimens from Kalumburu, Wyndham, Nicholson Station, South Alligator River and Eureka) are: ♂, 127, 129, 132, 134, 134; ♀, 129, 130, 131, 134. It is clear from these measurements that Mathews was right and though personally I would not base a subspecies on a single worn individual and on geographical grounds strongly doubt its validity, now that it has been named, it cannot be rejected until additional material may necessitate a reconsideration of its validity. Perhaps it is significant that the male from Light House Rock Pool, Nicholson River, with a wing length of 127 mm, is slightly smaller than other specimens of *brunnea* examined. Nicholson River is about a hundred miles north-east of Sturt Creek, the type locality of *julietae*.

The northern populations of *C. h. rufiventris* are of about the same size as *julietae*, but they differ in being grey-backed rather than brown-backed, and though I have no hesitation in making both *rufiventris* and *brunnea* subspecies of *harmonica* the relationship of *julietae* is with the latter rather than with the former, as, indeed, one would expect on geographical grounds.

Melithreptus lunatus chloropsis Gould

Gould (1848) described this subspecies from Swan River as having the unfeathered skin round the eye green, for which reason he named it *chloropsis*. Mathews (1909) named *Melithreptus whitlocki* from Wilson's Inlet as having the skin round the eye white all year. It may be pointed out that the names given by Mathews before his notorious contribution of January 1912, are usually valid, and the existence of two races, one with white and one with green over the eye, in the south-west of Western Australia has been accepted by several subsequent authors (Whittell & Serventy 1948, Serventy & Whittell 1951, but corrected by Serventy & Whittell 1962). I have observed and collected specimens in various parts of Western Australia, both near Perth and along the south coast, and found that in adult birds of both sexes the lunate patch over the eye is always white, while the lower eyelid is greyish blue in colour. In juvenile birds, on the contrary, which are easily distinguished by having a brownish tinge on the mantle and by the brown, not black, crown, the skin above the eye is pale blue. Gould's statement to the contrary, the skin is never green. It is clear, therefore, that Western Australia is inhabited by one race only, which retains the misnomer *chloropsis*. The nominate race differs by having the skin above the eye orange, and by its very slightly shorter bill.

Meliphaga virescens (Vieillot)

The geographic variation of this species, which has a continuous range over the whole of Australia, is so gradual that it is impossible to express it satisfactorily in nomenclature. The main trend is one of larger size and darker colour towards the south and the coastal areas, and of smaller size and paler colour inland and north. In a case like this, where no sharp boundaries exist anywhere, it is wise to refrain from giving too many names. In a previous paper (Mees 1961) I commented on the large size of the type of *lewisi* from Lewis Island, Dampier Archipelago. The bird, sexed as a female, has a wing of 96 mm.

In 1962 a collecting party from the Western Australian Museum visited the Dampier Archipelago, and obtained a number of specimens of *M. virescens*, though unfortunately none on Lewis Island. Wing-lengths of this material are: Legendre Island, ♂: 92.5, 96; ♀: 88, 88.5. Dolphin Island, ♂: 93, 93; ♀: 87.

Though these birds are very slightly darker in colour than inland specimens (from the Canning Stock Route) of *forresti*, and perhaps slightly larger on an average, they can best be included in that race. The fresh material confirms my earlier suspicion that the type of *lewisi* was wrongly sexed and is a male, which would account for its large size.

Meliphaga leucotis novaenorciae (Milligan)

The name *novaenorciae* has not generally been accepted and Milligan's (1904a) description to the contrary, I cannot detect any difference in colour between specimens from the south-west and the east of Australia, but there is a difference in size, as was correctly pointed out by Milligan (1904b). Material in the Western Australian Museum measures: New South Wales: ♂, 94 (juv.), 96,101, 102; ♀, 87, 87, 98. Victoria: ♀, 88, 92, 95; sex unknown, 92. Western Australia: ♂, 89, 91, 91, 91, 92, 94, 96; ♀, 81, 81, 82.5, 84, 85.

It is likely that the "♀" from New South Wales with a wing of 98 mm is incorrectly sexed, so that we get for the eastern states: ♂, (94), 96-102; ♀, 87-95; and for Western Australia: ♂, 89-96; ♀, 81-85. On the basis of these figures *novaenoreiae* seems tenable as a form slightly smaller than the nominate race.

Notwithstanding its name, this bird has never been found at New Norcia; the Wongan Hills evidently form its western limit of distribution. Eastwards it extends at least to Zanthus (Whitlock 1922, p. 175).

Artamus cyanopterus (Latham)

Keast (1958), followed by Mayr (*in* Mayr & Greenway 1962), recognised *perthi* Mathews, though as a poorly differentiated race, on the basis of having only the 2nd and 3rd primaries edged with white, while in birds from eastern Australia the 2nd, 3rd and 4th primaries show white edges. The material of this species in the Western Australian Museum shows that not only is white usually present on the 4th primary of Western Australian birds, as already indicated by Keast, but also that in eastern birds it is sometimes feebly indicated or practically absent (see table). This further weakens the case for retention of *perthi* and in my opinion the name should be synonymized. *Artamus cyanopterus* cannot be divided into subspecies.

	4th primary broadly edged with white	4th primary narrowly edged with white	4th primary almost without white
New South Wales (7 specimens)	4	2	1
Western Australia (15 specimens)	5	7	3

Cracticus nigrogularis nigrogularis (Gould)

In a previous paper (Mees 1961, p. 126 footnote) I mentioned that birds from the extreme south-west of the Kimberley Division belong to the nominate race. The available material is the following:

No.	Sex	Locality	Date	Wing	Bill	Weight (grams)
AS412	♂ im.	La Grange ..	28.v.1960	169	47	132
AS413	♂ ad.	,, ...	,,	171	45	126
AS415	♂ ad.	Leanwarringah Well (between Broome and Derby)	30.v.1960	178	46	124
AS414	♂ ad.	Derby	3.vi.1960	176	47·5	126

Two recently collected specimens from the north Kimberley Division measure:

No.	Sex	Locality	Date	Wing	Bill	Weight (grams)
AS418	♂ im.	Kalumburu	26.vi.1960	159	43	....
AS419	♂ ad.	,, ...	24.vi.1960	154	38	....

Field observations at Pardoo and Anna Plains show that the range of the nominate race is continuous along the Eighty Mile Beach. The boundary between the two races in the Kimberley Division remains to be found, but as birds from Wotjulum clearly are pure *picata*, the nominate race cannot range far into the Kimberley Division; also the boundary between the races must be rather abrupt, which suggests secondary contact. It is perhaps reasonable to assume that the nominate race has only comparatively recently worked its way up along the coastal strip of the Eighty Mile Beach. Perhaps the Kimberley specimens of the nominate race average slightly smaller than more southern birds, but they are much too large to be regarded as intermediates.

References

Campbell, A. J. (1918).—Notes on some additions to the H. L. White collection. *Emu* **18** : 2-8.

De Vis, C. W. (1889).—List of birds, lizards, and snakes collected at Cambridge Gulf. *Proc. Roy. Soc. Qd.* **6** : 236-239.

Ford, J. R. & Stone, P. S. (1957).—Birds of the Kellerberrin-Kwolyin District, Western Australia. *Emu* **57** : 9-21.

Gould, J. (1848).—"The Birds of Australia" **IV**, part 30 (London).

Keast, J. A. (1958).—Seasonal movements and geographic variation in the Australian woodswallows (Artamidae). *Emu* **58** : 207-218.

———— (1961).—Bird speciation on the Australian continent. *Bull. Mus. Comp. Zoöl. Harv.* **123** : 303-494.

Mack, G. (1933).—The White-breasted Whistler. *Emu* **33** : 1-3.

Mathews, G. M. (1909).—Descriptions of two new subspecies of Australian birds. *Bull. Brit. Orn. Cl.* **25** : 24.

———— (1930).—"Systema Avium Australasianarum" (Taylor & Francis : London.)

———— (1931).—"A List of the Birds of Australasia" (Taylor & Francis : London.)

———— (1942).—New forms of Australian birds. *J. Roy. Soc. W. Aust.* **27** : 77-78.

Mayr, E. (1948).—Geographic variation in the reed-warbler. *Emu* **47** : 205-210.

———— (1954).—Notes on Australian whistlers (Aves, *Pachycephala*). *Amer. Mus. Novit.* **1653** : 22 pp.

Mayr, E. & Greenway, J. C. (1962).—"Check-List of Birds of the World" **XV** (Museum of Comparative Zoölogy : Cambridge, Mass.)

Mees, G. F. (1961).—An annotated catalogue of a collection of bird-skins from West Pilbara, Western Australia. *J. Roy. Soc. W. Aust.* **44** : 97-143.

Milligan, A. W. (1904a).—Notes on a trip to the Wongan Hills, Western Australia, with a description of a new *Ptilotis*. Part I. *Emu* **3** : 217-226.

———— (1904b).—Plumage phases of *Ptilotis leucotis*. *Emu* **3** : 234.

Reid, D. (1951).—A Bunketch bird list. *W. Aust. Nat.* **3** : 68-71.

Saville-Kent, W. (1889).—Preliminary observations on a natural history collection made in connection with the surveying cruise of H.M.S. "Myrmidon" at Port Darwin and Cambridge Gulf—September to November, 1888. *Proc. Roy. Soc. Qd* **6** : 219-236.

Serventy, D. L. (1946).—Publication dates on some recent names. *Emu* **46** : 236.

Serventy, D. L. & Whittell, H. M. (1951).—"A Handbook of the Birds of Western Australia", 2nd ed. (Paterson Brokensha : Perth.)

———— (1962).—"Birds of Western Australia", 3rd ed. (Paterson Brokensha : Perth.)

Stoll, N. R. & al. (1961).—"Code International de Nomenclature Zoologique adopté par le XVe Congrès International de Zoologie/International Code of Zoological Nomenclature adopted by the XV International Congress of Zoology" (Int. Trust Zool. Nomencl. : London.)

Whitlock, F. L. (1922).—Notes from the Nullarbor Plain. *Emu* **21** : 170-187.

Whittell, H. M. & Serventy, D. L. (1948).—"A Systematic List of the Birds of Western Australia" (Government Printer : Perth.)